

NI-BASE SUPERALLOY HAVING A THERMAL BARRIER COATING SYSTEM

Abstract

An article and TBC coating system thereon that in combination exhibit significantly improved spallation resistance. The article comprises a substrate formed of a metal alloy containing ruthenium and one or more refractory elements (e.g., tantalum, tungsten, molybdenum, rhenium, hafnium, etc.). The substrate is protected by a coating system comprising an aluminum-containing bond coat on the surface of the substrate and a ceramic coating bonded to the substrate by the bond coat. The bond coat, preferably an aluminide, is deposited so as to be substantially free of ruthenium, though ruthenium is present in the bond coat as a result of diffusion from the substrate into the bond coat.